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ABSTRACT

Differences between left and right hemispheric subjects in recalling information presented as pictures and words were studied. The hemisphericity of 133 college students (37 males and 96 females) was identified using the Human Information Process Survey. These subjects were shown 25 concrete nouns individually either as pictures or words. The data were evaluated using analysis of variance by hemisphericity, modality, gender, and age groups, respectively. The differences between left and right hemispherics on pictures and words did not quite reach statistical significance, although the trend was indicative of previously reported findings. There were significant differences when pictures and words, respectively, were shown to left and right hemispherics. In both cases, picture information was recalled much better. Left hemispheric women recalled more words than did right hemispheric women, and women were generally left hemispheric. The 2 older age groups, 21 through 29 years, and 30 through 54 years, recalled more pictures than words. Three tables present study findings. (Author/SLD)

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DIFFERENCES IN RECALL OF PICTURES AND WORDS AS A FUNCTION OF HEMISPHERICITY

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DIFFERENCES IN RECALL OF PICTURES AND WORDS AS A FUNCTION OF HEMISPHERICITY

ABSTRACT

Differences between left and right hemispheric groups in recalling information presented as pictures and words was studied. There were 133 subjects in the study who were identified as left and right hemispherics. They were shown 25 concrete nouns individually either as pictures or words. The data were analyzed (using the analysis of variance) by hemisphericity, modalitity and gender and age groups, respectively. Significant differences were found between various hemispheric, modality, gender(women) and age groups. Further studies with larger number of subjects are highly suggested.

INTRODUCTION

Research (Bradshaw & Nettleton, 1981; Springer & Deutsch, 1985; Coleman & Zenhausern, 1979) shows that the two cerebral hemispheres differ in their modes of processing information. The left hemisphere specializes in verbal, analytical, temporal, and digital materials. The right hemisphere specializes primarily in nonverbal, concrete, spatial, analogic, emotional, and aesthetic materials. These studies indicate that individuals have preferences in processing information. Women tend to be more

left hemispheric and men tend to be more right hemispheric. The purpose of this study was to investigate whether there were significant differences between the left and right hemispheric groups in recalling information presented as pictures and words.

METHOD

There were 239 subjects, enrolled in psychology classes at a state university, who volunteered to participate in this study. They were administered the Human Information Process Survey (Taggart & Torrance, 1984) which identified their hemisphericity. Of this group, 133 subjects were identified as left and right hemispherics. In this group of 133, there were 37 men and 96 women of which 32 were freshmen, 38 were sophmores, 42 were juniors, 13 were seniors, and 8 were graduates. Their ages ranged from 18 to 54 years.

These subjects were shown 25 nouns (Bousfield, Esterson & Whitmarsh, 1957; Gadzella & Whitehead, 1975). The simple nouns were selected which fell into five categories of meaning (a) FLOWERS - daisy, rose, violet, dandelion, and fern; (b) FRUIT - pear, apple, grapes, banana, and lime; (c) VEGETABLES - onion, eggplant, corn, radish, and lettuce; (d) BIRDS - seagull, cardinal, peacock, canary, and parrot; and NATURE = clouds, sun, mountains, star, and trees. These nouns were presented, individually on slides, as pictures and words. Some subjects saw pictures, others saw words. In the left hemispheric group, 34 subjects saw pictures and 33 saw words. In the right hemispheric group, 27 subjects saw pictures and 39 saw words. The groups

were further identified by hemisphericity, the modality they saw the information, and by gender and age groups, respectively. One-way analyses of variance were computed for various groups.

RESULTS

Data for hemisphericity on modality for the 133 subjects are presented in Table 1. There was a significant difference ($p < .0041$) on recall of information between left hemispherics who saw pictures and left hemispherics who saw words. Also, there was significant difference ($p < .00001$) between right hemispherics who saw pictures when compared with right hemispherics who saw words. In each case, more picture information was recalled that information presented in words. When left hemispherics who saw pictures were compared to right hemispherics who saw pictures, the difference was not significant, but the mean was larger for the right hemispherics. When left hemispherics who saw words were compared to right hemispherics who saw words, the difference was not statistically significant (Table 1), but the mean was larger for the left hemispherics. Data in these two cases indicate the trend is similar to findings reported in previous studies.

In addition, data were analyzed by hemisphericity, modality and gender. Significant difference ($p < .0395$) was found on words between left hemispheric women and right hemispheric women. The left hemispheric women recalled more words.

Further analyses were computed between hemisphericity, modality, and age groups. Data in Table 3 show significant

difference ($p < .0004$) between Group Two (21 - 29 years) and significant difference ($p < .002$) for Group Three (30 - 54 years) between pictures and words. In each case, the two age groups recalled more picture information than word.

DISCUSSION

The results in this study show that the difference between left and right hemispherics on pictures and on words, respectively, did not quite reach statistical significant. However, the trend is indicative of previously reported findings. There were significant differences when pictures and words, respectively, were shown to left and right hemispherics. In both cases, picture information was recalled much better.

The left hemispheric women recall more words than the right hemispheric women. Women are generally left hemispheric. When age groups were considered among the hemispheric-modality groups, it is interesting to note (in spite of small numbers), the two older groups (ages 21 - 29 years and 30 - 54 years) recalled more pictures than words. These data may indicate specific characteristics of aging.

CONCLUSION

The results of the present study provide some interesting findings when the groups are identified by hemisphericity, modalitity, and gender and age groups, respectively. The numbers in some of the groups were small and for that reason further research is needed which would provide for larger number of

subjects in the subgroups. The information might provide valuable characteristics about how different groups of people process the information.

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TABLE 1

F-ratios, Means, and Standard Deviations for Hemisphericity (Left or Right) on Modality (Pictures or Words) For 133 Subjects

Hemisphericity	Modality	N	M	SD	F-ratio	p
Left	Pictures	34	19.59	3.21	8.85	.0041*
Left	Words	33	17.33	2.99		
Right	Pictures	27	20.33	2.53	24.72	.0000*
Right	Words	39	16.28	3.67		
Left	Pictures	34	19.59	3.21	0.97	.3278
Right	Pictures	27	20.33	2.53		
Left	Words	33	17.33	2.99	1.73	.1921
Right	Words	39	16.28	3.67		

*p <.05

TABLE 2

F-ratios, Means, and Standard Deviations for Hemisphericity (Left and Right) on Modality (Words) for Gender (47 Women)

Hemisphericity	Modaility	N	M	SD	F-ratio	p
Left	Words	21	17.95	3.04	4.50	.0395*
Right	Words	26	16.00	3.21		

p < .05

TABLE 3

F-ratios, Means and Standard Deviations for Hemisphericity (Right) on Modality (Pictures and Words) For Age Groups (Group 2 = 21 - 29 Years and Group 3 = 30 - 54 Years)

Hemisphericity	Modality	Group	N	M	SD	F-ratio	p
Right	Pictures	2	9	21.00	2.18	16.91	.0004*
Right	Words	2	18	15.89	3.38		
Right	Pictures	3	9	19.89	2.57	13.88	.0020*
Right	Words	3	8	15.88	1.73		

p < .05